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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention is applied to the video recording which records a video signal and an audio signal especially for a long time about the signal recording device and signal recording method which switch two or more recording media and record a signal, and relates to effective art.

[0002]

[Description of the Prior Art]Although the video recording device which records the video signal which consists of a video signal and an audio signal has generally spread, with this kind of device, the cassette type videotape which accommodated magnetic tape is used for the case called a cassette as a recording medium for protection of the ease of handling and a tape. On such cassette type videotapes, restriction arises also at the inclusion time which the quantity of the tape which can be accommodated in a cassette has restriction, therefore can record a signal on the cassette tape of one volume with the outside dimension of a case, and the thickness of a tape.

[0003]Restriction of such inclusion time poses an important problem, when making the timed recording of two or more programs, or when it is necessary to combine with a surveillance camera and prolonged recording needs to be performed continuously.

[0004]Then, when performing prolonged record more than inclusion time, it is possible to install, switch and use two or more recorders, but by this method, since two or more same devices are needed, expense starts and a place is also taken.

[0005]Therefore, the recorder which records on one recorder by accommodating two or more cassette type videotapes, and exchanging cassettes automatically was able to be considered.

[0006]

[Problem(s) to be Solved by the Invention]In such a conventional video recording device, in the case of exchange of cassette type videotape. Separate a tape from the cylinder provided with the head for record first, accommodate in a cassette, and cassettes are made to move and exchange, and after pulling out a tape from a new cassette and performing the volume price to a cylinder, in order to start record, it will take time. Since a signal is unrecordable between this cassette exchange, there is a problem that record will break off. Such a problem becomes important, in order to make the timed recording of two or more programs when a single program is recorded ranging over the tape of two volumes, or when it is necessary to record, without combining with a surveillance camera and breaking off continuously.

[0007]While exchanging cassette type videotape, when an image breaks off, the visitor who gathered

with much trouble may break up, and it may be necessary to play continuously, when advertizing campaign etc. also in playback, without breaking off.

[0008]There is the purpose of this invention in providing the art which can be recorded continuously, without breaking off, when performing prolonged record or reproduction using two or more recording media.

[0009]The other purposes and the new feature will become clear with description and the accompanying drawing of this specification along [ said ] this invention.

[0010]

[Means for Solving the Problem]It will be as follows if an outline of a typical thing is briefly explained among inventions indicated in this application.

[0011]Control recorded on a recording medium which switched a signal which formed memory storage and a control device in a signal recording device which continues and records a signal on two or more recording media with a single recorder, memorized a signal to memory storage between changes of a recording medium, and was memorized after the completion of a change is performed.

[0012]

[Function]According to the means mentioned above, even if two or more recording media are switched and it performs prolonged record and reproduction, record and reproduction do not break off.

[0013]Hereafter, the composition of this invention is explained with an example.

[0014]In the complete diagram for describing an example, what has the same function attaches identical codes, and explanation of the repetition is omitted.

[0015]

[Example]

(Example 1) Drawing 1 is one example of this invention.

A twin cassette video recording device which performs record and playback of the video signal which accommodates two cassette type videotapes which are recording media, and consists of a video signal and an audio signal succeeding the tape of two volumes. It is a system configuration figure showing the outline composition of the portion about video record of (only calling it a video recording device hereafter).

[0016]In addition to the usual composition, in the video recording device of this example, the memory storage 1 and the control device 2 are formed. The memory storage 1 consists of A/D converters 3 and 4 which change an analog signal into a digital signal, D/A converter 5 which changes a digital signal into an analog signal, and the memory 6, The control device 2 consists of the bypass circuit 9 which bypasses the change over switch 7 for an input, the change over switch 8 for an output, and the memory storage 1, and links an input and an output directly, and the switching control circuit 10 which controls a change over switch by the termination signal of a tape, In this example, it records by switching the tapes 11 and 12 of two volumes.

[0017]Drawing 2 is an outline lineblock diagram showing the tape accommodation state of the video recording device of this example. 13 are the cylinder which attached magnetic heads, such as record, playback, and elimination, among a figure, in a video recording device, the two cassette type videotapes 11 and 12 are accommodated, the cassette type videotape 11 has become condition of use, and the cassette type videotape 12 has become a waiting state.

[0018]Attach/detach and movement of the cassette type videotapes 11 and 12 are explained below.

[0019]After the cassette type videotape 11 into which it was put from the loading slot 14 moves to the method of figure Nakashita first, it will move to the right direction and will be in condition of use, and a tape is pulled out from a cassette, and it is twisted around the cylinder 13. Next, the cassette type videotape 12 into which it was put from the loading slot 14 will move to the method of figure Nakagami, and will be in a waiting state. At the time of exchange of the cassette type videotapes 11 and 12, the cassette type videotape 11 will move up, the cassette type videotape 12 will move caudad, the cassette type videotape 11 will move to a left, and it will be in a waiting state, and the cassette type videotape 12 will move to the right direction, and will be in condition of use. After that, the cassette type videotape 11 moves caudad and is discharged from the loading slot 14.

[0020]What are shown in drawing 3 is systems in which the outline composition in the case of carrying out video record continuously is shown, without breaking off on two or more cassette type videotapes 11 and 12 with the video recording device of this example.

[0021]First, cassette type videotape 11 is made into condition of use, cassette type videotape 12 is made into a waiting state, and the video signal which set the change over switches 7 and 8 as the bypass circuit 9, and inputted them is recorded on the cassette type videotape 11 as it is. If it records to the termination of the cassette type videotape 11, the VISS (VHS Index Search System) signal used for relative location detection of cassette type videotape will detect the termination of the cassette type videotape 11, The change over switches 7 and 8 switch to the memory storage 1. And the cassette type videotape 11 and the cassette type videotape 12 are exchanged like the above-mentioned. A video signal is digitized by A/D converter 3 and memorized by the memory 6 in the meantime. If exchange of the cassette type videotapes 11 and 12 is completed, T seconds [ which was produced by exchange ] before a time lag, the digital signal memorized by the memory 6 will be changed into an analog signal by D/A converter 5, and a video signal will be restored. It records on the cassette type videotape 12 for which this restored video signal was exchanged, and the signal of delay is recorded on the cassette type videotape 12 for T seconds until record is completed henceforth.

[0022]What are shown in drawing 4 is systems in which the outline composition in the case of playing continuously with the video recording device of this example, without breaking off a video signal from the cassette type videotapes 11 and 12 recorded like the above-mentioned is shown.

[0023]The cassette type videotape 12 is inserted first and partial T seconds of the head of the cassette type videotape 12 are played beforehand, and this video signal is digitized with A/D converter 4, it memorizes in the memory 6, and the cassette type videotape 12 is moved to a waiting state with T second passage state. After an appropriate time, cassette type videotape 11 is made into condition of use, and the change over switch 8 for an output is set as the bypass circuit 9. Playback is begun from the state and the video signal recorded on the cassette type videotape 11 is played. At the time of exchange of the cassette type videotapes 11 and 12. First, a VISS signal detects the termination of the cassette type videotape 11, the change over switch 8 is set as the memory storage 1, and the video signal for T seconds which changed into the analog signal the digital signal which the memory 6 was made to memorize beforehand with D/A converter 5 is outputted. Between them, the cassette type videotape 11 and the cassette type videotape 12 are exchanged like the above-mentioned. If exchange of the cassette type videotapes 11 and 12 is completed, it plays from T second passage state of the cassette type videotape 12 used as condition of use, and the cassette type videotape 12 will be played until playback is completed henceforth.

[0024]Although a termination is detected and the cassette type videotapes 11 and 12 are exchanged in

this example, it is also possible to have composition which records a synchronized signal on the cassette type videotapes 11 and 12, and sets up the change over switches 7 and 8 with this synchronized signal. [0025]It is also possible to omit A/D converter 4 by having composition which connects with an input and changes into digital information the signal which played partial T seconds of the head of the cassette type videotape 12 with A/D converter 3 about A/D converter 4 of this example. Although this example explained the signal recording device which records an analog signal, when this invention is applied to the signal recording device which records a digital signal, an aforementioned A/D converter and D/A converter are unnecessary.

[0026]By what it changes into the cassette type videotape 11, another new cassette type videotape is inserted, and is considered as the waiting state while recording on the cassette type videotape 12 in this example. It is also possible to have composition which exchanges the new cassette type videotape and cassette type videotape 12 in the procedure of Mr. \*\*\*\* after the end of cassette type videotape 12, and also continues prolonged record.

[0027](Example 2) Drawing 5 and drawing 6 are the outline lineblock diagrams showing the accommodation state of the cassette type videotape of the signal recording device which are other examples of this invention. 13 are the cylinder which attached each magnetic head which performs record and reproduction for images among a figure, and this cylinder 13 is attached on the turntable 16 which rotates 180 degrees focusing on the axis 15.

[0028]In this example, carried out attach/detach of the cassette type videotapes 11 and 12 of two volumes to the long side direction, and carried out the cylinder 13 in between, it was made to counter, and it has accommodated. In drawing 5 and drawing 6, the cassette type videotape 11 will be in condition of use, and the cassette type videotape 12 has become a waiting state. Attach/detach of the cassette type videotapes 11 and 12 is performed from the loading slot 14 established in each. The change of the cassette type videotapes 11 and 12 is performed by moving the cylinder 13, without moving a cassette.

[0029]At the time of the change of the cassette type videotapes 11 and 12. After accommodating in a cassette the tape twisted around the cylinder 13 with the guide post 17, the turntable 16 which attached the cylinder 13 focusing on the axis 15 rotates, and it moves to the cassette type videotape 12 side (dashed line graphic display state). If movement is completed, a tape will be pulled out from the cassette type videotape 12, it will be twisted around the cylinder 13, and the cassette type videotape 12 will be in condition of use.

[0030]Then, the cassette type videotape 11 is discharged from the loading slot 14 after tape accommodation.

[0031]Among a figure, 18 are a magnetic head for elimination and are for eliminating the magnetic data currently recorded on the tape before record. 19 is a magnetic head for audio record / reproduction. 20 is a fixing post for being stabilized and supporting the turntable 16.

By increasing the number of these fixing posts 20, the turntable 16 can be fixed firmly and the operation where the cylinder was stabilized can be guaranteed.

As the fixing post 20, what moves with the turntable 16, and the thing currently fixed to each position can be considered.

[0032]Since the cassette type videotapes 11 and 12 are switched by movement of the cylinder 13, without moving the cassette type videotapes 11 and 12 with the video-signal-recording device of this example, As compared with the usual twin cassette deck to which a tape is moved, the time which a

change takes is shortened remarkably. It becomes possible to make into a smaller thing memory space which is needed for memory storage by this. Even if it applies the composition of this example to the usual twin cassette deck which is not provided with memory storage and a switching control device, it is effective. By adopting this composition, in addition to the time which a change takes being shortened, since area in transverse plane of a device can be made small, it becomes possible to miniaturize a device. [0033]As mentioned above, as for this invention, although the invention made by this invention person was concretely explained based on said example, it is needless to say for it to be able to change variously in the range which is not limited to said example and does not deviate from the gist. [0034]For example, the MD recorder which records only an audio signal other than the signal recording device which records a video signal, It is possible to apply this invention to compact disc players which perform only reproduction, such as a digital compact cassette deck and a cassette deck, a laser vision player, etc.

[0035]

[Effect of the Invention]It will be as follows if the effect acquired by the typical thing among the inventions indicated in this application is explained briefly.

[0036](1) According to this invention, even if two or more recording media are switched and it performs prolonged record, it is effective in record not breaking off.

[0037](2) According to this invention, even if two or more recording media are switched and it performs prolonged reproduction, it is effective in reproduction not breaking off.

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[Translation done.]